

State of the Birds in Boulder County: 2011 Report

by Stephen Jones, September 3, 2011

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Part I: Can Locally Extirpated Species Be Recovered?

The Boulder County Avian Species of Special Concern List (Hallock and Jones 2010; www.bcna.org) includes four breeding species thought to have been extirpated from the county before 1900: Barrow's Goldeneye, Sharp-tailed Grouse, Long-billed Curlew, and Mountain Plover. All four were "edge of range" species that barely made it into Boulder County, and all four were considered rare breeders.

Their disappearance stemmed from a variety of environmental factors, including extirpation of bison, fire suppression, and human disturbance of floodplains grasslands. However, some potential nesting areas that were disturbed during the late nineteenth century are returning to a more natural state, and all four of these species still nest within 100 miles of Boulder County. So what are the chances of recovering them locally?

1. Barrow's Goldeneye

On July 19, 1886, naturalist Denis Gale saw an adult Barrow's Goldeneye with 3 flightless young on the "upper lake of North Saint Vrain." (Henderson 1907). Twenty-two years later, University of Colorado Museum curator Junius Henderson described this cavity-nesting duck as a "summer resident, perhaps resident, passing well up into the mountains." (Henderson 1908). He mentioned Gale's breeding season observation but no others. Colorado Breeding Bird Atlas volunteers found nesting Barrow's Goldeneyes at three shallow lakes in the Flat Tops Wilderness, north of Glenwood Springs (Kingery 1998). From 1999-2006, Rocky Mountain Bird Observatory volunteers found several more breeding sites in the Flat Tops (Rocky Mountain Bird Observatory 2007). However, breeding populations appear to be declining, possibly in response to a shortage of suitable nest trees (Rocky Mountain Bird Observatory 2007). Though Barrow's Goldeneyes can lay their eggs on ledges, they probably depend on woodpecker cavities for nesting in western Colorado (Kingery 1998).

The future of Barrow's Goldeneyes in Boulder County may be more closely tied to activities of forest insects than to activities of humans. Infestations of pine beetles, spruce budworms, and other insects, which are driven by climatic conditions, create the dead trees that these ducks may require for nesting. A decade from now, when the conifers killed by our current wave of insect infestations have begun to rot, a family or two of Barrow's Goldeneye's may again grace a remote lake in the Indian Peaks Wilderness.

2. Plains Sharp-tailed Grouse

Gale (Henderson 1907) included this species in his list of Boulder County birds and discussed its nesting habits, without specifying nesting locations. Plains Sharp-tailed Grouse nested in scattered populations throughout northeastern Colorado during the late nineteenth century (Kingery 1998). One isolated Front Range population still exists in Douglas County, south of Denver. A recent effort to reintroduce Sharp-tailed Grouse in the Rocky Flats/Coal Creek grasslands south of Boulder apparently failed. Vegetative cover in Boulder's remnant tallgrass/mixed-grass prairies may not be sufficient to provide suitable habitat for this species, but continued study is certainly in order.

3. Long-billed Curlew

Long-billed Curlews are occasionally seen in Boulder County during spring and early summer (Boulder County Audubon Society 1979-2011), but the last nesting report is from Gale, who collected several sets of eggs at unspecified locations in 1888 (Henderson 1907). Curlews nest in scattered numbers throughout eastern Colorado, and Colorado Breeding Bird Atlas volunteers confirmed nesting near Loveland (Kingery 1998). These upland shorebirds require mid-grasses for nesting and bare ground or muddy areas for foraging. Given the proximity of some nesting populations to Boulder County, along with the success of recent restorations of Boulder Creek and Saint Vrain Creek floodplain grasslands, it seems likely that Long-billed Curlews will nest in Boulder County in the not-too-distant future. However, ever-expanding suburban sprawl on the plains may discourage curlews from residing here.

4. Mountain Plover

The extirpation of free-roaming bison may have doomed Mountain Plovers in Boulder County. Bison herds created the bare ground that these plovers require for nesting and foraging (Kingery 1998). For a short time during the late nineteenth century, prairie dogs and overgrazing cattle may have created enough disturbance of local prairies to sustain a few Mountain Plovers. The only documentation of their breeding here is again from Gale (Henderson 1907), who discussed their nesting habits without giving specific nesting locations.

Today, true shortgrass prairie is hard to find in Boulder County. Sustaining this ecosystem in our relatively wet plains/foothills interface climate requires intensive grazing by ungulates. Without large herds of bison to graze and trample the prairie, we might need a major climate shift, causing our mixed-grass prairies to morph into shortgrass prairies, to restore nesting habitat for this species. Ironically, that climate shift is well underway.

Some people question the importance of restoring extirpated species to Boulder County when these species nest successfully in other parts of Colorado. Besides the Federal Endangered Species Act, there's little protection for threatened vertebrate populations in North America. Since our local environment is the one environment we can control, it would seem foolish and irresponsible to allow birds and mammals to go extinct just beyond our doorsteps.

We are one of the wealthiest counties in North America, if not in the world, and almost half of our county's land is publicly owned. If we can't protect and restore our locally endangered species, how can we expect others to do the same? All of our management plans for all of our public lands should include strategies for recovering extirpated species.

Part II: Rare and Declining Species

Each year the Boulder County Nature Association compiles breeding season sightings of species listed as "rare and declining" on the county *Avian Species of Special Concern List* (www.bcna.org). To qualify for this category, birds must nest annually in three or fewer known locations and have previously been documented as more common than they are now.

These rare and declining species are the ones closest to extinction in Boulder County, so monitoring their nesting success and protecting known nesting habitats is critical. We are grateful for all the reports we received each year from many volunteers. Here's a short summary of the 2011 status of each of the eleven species:

- 1. Northern Bobwhite**We've received no nesting reports for this species for 15 years. We don't know for sure if Northern Bobwhites are native to Boulder County, since many have been introduced by hunting clubs over the years. Numbers were probably highest during the early 20th century, but upland gamebird hunting was also much more prevalent during that time.
- 2. Eared Grebe**Eared Grebes nested historically around marshes, ponds and lakes on the plains, though they were never common (Hallock and Jones 2010). Unstable water levels in reservoirs, which have replaced naturally-occurring marshes, may have eliminated nesting sites for this species. We've documented no nesting reports since the early nineteenth century.
- 3. Northern Harrier**A single nest west of Boulder Reservoir failed in 2011, though harriers nested successfully at the reservoir during 2009 and 2010. Nesting attempts near Lagerman Reservoir failed during 2010 and 2011. We suspect that predation by carnivores is contributing to these nest failures. It's likely that nest sites in Boulder County are so limited that urban-edge predators learn to find and recognize them. As ground nesters, harriers are particularly vulnerable to nest predation by coyotes, foxes, domestic dogs, and other carnivores.
Another factor contributing to nest failure may be fluctuating water levels in marshes on the west side of Boulder Reservoir. With nest sites limited, harriers may sometimes be choosing sites that are easily flooded in late spring.
- 4. Long-eared Owl**After nearly 20 years when no nests were reported in Boulder County, several have turned up. From 2004-09 a pair nested successfully in a shelter belt on the west side of Erie. A second shelterbelt nest in the Boulder Creek floodplain east of 75th St. also fledged at least one young. A nest in a Louisville city park fledged at least three young during 2008 and 2010. Nesting has also been reported on Shanahan Ridge and in

the upper Doudy, south of Boulder, and at Heil Ranch Open Space. It's possible that some long-eared owls are adapting to competitive pressures from great horned owls and carving out new niches in Boulder County.

5. **Red-headed Woodpecker**We've received only sporadic breeding season reports. The last successful nesting documented in Boulder County was during the early 1990s (Hallock and Jones 1999).
6. **Lewis's Woodpecker**Two pairs nested successfully at Heil Ranch Open Space during 2010 and 2011. Fire suppression during the 20th century probably limited nesting opportunities for this species in Boulder County.
7. **Loggerhead Shrike**We receive occasional reports of individuals during late spring of each year, but we've received no recent nesting reports.
8. **Brown Thrasher**Several are observed each year during the breeding season at several prairie locations. We suspect this species still nests in scattered areas of Boulder County, but we haven't received confirmation of nesting during this decade.
9. **Lark Bunting**

Several were observed during the breeding season on Marshall Mesa and in Meyers Gulch at Walker Ranch. We suspect this species still nests in scattered areas of Boulder County, but we haven't received confirmation of nesting during this decade.

A quick look at the "rare and declining" list reveals that all the listed species breed predominantly on the plains or in the lower foothills. Fragmentation and destruction of native ecosystems on the plains certainly pose the greatest threat to Boulder County's nesting bird populations.

One thing that we've learned during the past two decades is that simply protecting nesting sites for declining species is not sufficient to ward off local extinctions. For example, most of the known northern harrier nest sites and burrowing owl nest sites in the county lie in protected areas (predominantly City of Boulder Open Space and Boulder County Open Space). Despite this protection, these species have declined precipitously. We now understand that protecting large areas of native habitat and buffering them from development is necessary to retain our native habitat specialists.

Part III: Habitat Specialists

The *Boulder County Avian Species of Special Concern List* (www.bcna.org) includes 30 species that are neither demonstrably rare nor declining but are considered "isolated or restricted." These specialists nest in a limited number of locations in the county or occupy narrow habitat niches.

Boulder County Audubon (BCAS) and the Boulder County Nature Association (BCNA) maintain nesting records for about half of these birds, primarily herons, cliff-nesting raptors, and small owls. Here's how some of them appear to be doing:

- 1. Wood Duck** This cavity-nesting duck is a relatively new summer resident in eastern Colorado, having first been reported as nesting during the 1960s (Bailey and Niedrach 1964, Kingery 1998). Boulder County populations have gradually increased since 1979. A total of 61 wood duck sightings were reported to the Boulder County Wildlife Inventory in 2006, compared to 3 sightings in 1979 and 1980 (BCAS, 1979-2007).
- 2. Ring-necked Duck** Though common during migration and winter, Ring-necked Ducks nest in small, isolated populations in the high mountains, often in beaver ponds or willow carrs (Kingery 1998). Boulder County nesting populations have remained fairly stable during the past 25 years (BCAS, 1979-20011, Hallock 2004), though a recent, short-term decline may be cause for concern.
- 3. Great Blue Heron** For at least two decades the only known Great Blue Heron nesting site in Boulder County was the rookery at Boulder Valley Farm (along Boulder Creek east of 75th St.). This rookery supported up to 205 nests during the 1990s (Janet George, pers. comm.). In 2000-2001, many of the herons moved to a rookery east of Longmont and southwest of Union Reservoir. By 2005 only 99 Great Blue Heron nests remained in the Boulder Valley Farms rookery, but three new rookeries had become established along North St. Vrain Creek west of Hygiene (Rocky Mountain Bird Observatory 2006). Another new rookery sprang up at Shanahan's Pond, along State Highway 93 just south of Boulder, in 2007.
- 4. Great Egret** Until recently the Boulder Valley Farms heronry was the only known Great Egret nest site in Colorado (Kingery 1998). In 2000-2001, the egrets packed up and moved to the new heronry east of Longmont (Janet George, pers. comm.). Recent data from the Boulder County Wildlife Inventory suggest this species may be declining locally (BCAS, 1979-2011); however, these data may simply reflect a reorientation of egret foraging areas to eastern Boulder County and Weld County.
- 5. Northern Goshawk** Little is known about local populations of this secretive forest hawk, but we did receive reports of at least three nests in 2007. Mike Figgs and Nan Lederer observed a successful goshawk nest near St. Malo, and Dave Hallock reported a successful nest near Rainbow Lakes Road. An historic nest at Heil Ranch remained active (Susan Spalding, pers. comm.). Gregg Burch reported potential nesting activity near Burnt Mountain, just east of the Peak-to-Peak Highway. An historic goshawk nesting site in Lost Gulch, in the Boulder Mountain Park, appears not to have been active for several years (Linda Andes-Georges, pers. comm.).
- 6. Swainson's Hawk** Here's an apparent case of a grassland and other open country specialist "generalizing" its behavior, with positive results. Swainson's Hawk sightings reported to the Boulder County Wildlife Inventory have nearly doubled since the 1980s.

What's remarkable is that many pairs seem to be nesting in small open space parcels within urban areas, particularly in Louisville and Broomfield (Blake Schmidt and Paul Hansley, pers. comm.).

- 7. Ferruginous Hawk** Though there are no nesting records for Ferruginous Hawks in Boulder County, they make it onto the list because of their affinity for grasslands and other open country. Boulder County wintering numbers of these majestic raptors have declined more than 80% since 1990 (BCNA 2011, BCAS 1979-2011). Boulder County research by Berry, Bock, and Haire (1998) suggests that there is a threshold level of habitat fragmentation that drives these hawks away from urbanizing environments.
- 8. Golden Eagle** Golden Eagles continue to nest in good numbers in Boulder County, with 12-15 nesting territories identified in the foothills and mountains. Fourteen monitored Golden Eagle nest sites fledged 14 young during 2010 (Lederer 2011). The 1983-2010 average was 6.1 fledged young observed per year. However, numbers of Golden Eagles observed on wintering raptor surveys have declined more than 50% since the early 1990s. Fragmentation of prairie foraging habitat by subdivisions and other human development may be limiting hunting opportunities for Golden Eagles on the plains of Boulder County.
- 9. Prairie Falcon** Of fifteen Prairie Falcon territories investigated during 2010, 7 were active, fledging a total of 15 young. During 2007, at least 13 young fledged from nests in the Boulder Mountain Park, alone (Lisa Dierauf, pers. comm.) In 2006 at least 21 young fledged from 5 Boulder County nests (Lederer 2011). It appears that this open country specialist may have adapted to fragmentation of its grassland habitat by increasing hunting activity in urban and suburban areas.
- 10. Peregrine Falcon** Four Peregrine Falcon nests in the Boulder Mountain Park fledged at least 6 young in 2010 (Lisa Dierauf, pers. comm.). From 2000-2011, approximately 3-5 pairs nested annually in the county, fledging 5-10 young each year (Lederer 2011).
- 11. Flammulated Owl and Boreal Owl** A 1992 BCNA study determined that Flammulated Owls were nesting in 10 of 15 roadless foothills canyons that were surveyed between Eldorado Springs and Lyons (BCNA, unpublished data). Flammulated Owls have nested continuously in Long Canyon, in the Boulder Mountain Park, since 1986, but numbers of detected owls have declined recently (BCNA unpublished data, Jones 1991). Calling males have been heard in Coulson Gulch during each of the past three years (Steve Jones, pers. obs.). Though Boreal Owls have been observed near Brainard Lake, on Bryan Mountain, and near Rogers Pass (Jones 1991), no studies of nesting populations have been initiated.
- 12. Burrowing Owl** Burrowing Owls were listed as "rare and declining" until 2010, when we determined that 6-10 nests have been documented annually in Boulder County during each of the previous three years (Hallock and Jones 2010). While numbers of nesting pairs appears to have increased during recent years, nesting success remains low. NASA monitored during 2008-11 fledged an average of fewer than two young per nest. We believe that predation on young by urban-edge predators, including Great Horned Owls

and Red Foxes, may be limiting Burrowing Owl nesting success in Boulder County.

13. BushtitBushtits nested in lower Shadow Canyon in 2006 (Paul Hansley, pers. comm.) and on Flagstaff Mountain in 2008 (Stephen Jones, pers. obs.). There was only one prior nesting report in the Boulder Mountain Park, by Louise Herring on Enchanted Mesa in 1956 (Hansley and Jones 2000). Increased shrub growth in foothills canyons that have been protected from livestock grazing may be providing nesting habitat for this locally uncommon species.

14. Gray CatbirdConsidered uncommon in Boulder County as recently as the 1980s (BCAS 1988), Gray Catbirds have proliferated in foothills canyons where shrub thickets are protected from livestock grazing (BCAS 1979-2011). Similar increases in numbers of Blue-gray Gnatcatchers, Yellow-breasted Chats, and Blue Grosbeaks have occurred in these areas (BCAS, 2011).

15. Bobolink

We still don't know whether Bobolinks nested in the Boulder Valley prior to Euro-American settlement (Thompson and Strauch 1986). Most observed nests have been in irrigated hay meadows. However, with increased protection of floodplains on City of Boulder and Boulder County open space, breeding pairs have been moving into native tallgrass prairies and the number of nesting pairs has increased (BCAS 1979-2011). During the 2005 nesting season, volunteers observed 175 Bobolinks on City of Boulder open space (Boulder Open Space and Mountain Parks, unpublished data). Bobolinks also nest in floodplains grasslands along North Saint Vrain Creek.

The other non-rare Boulder County species listed as "isolated and restricted" are: Double-crested Cormorant, Black-crowned Night-Heron, White-tailed Ptarmigan, Three-toed Woodpecker, Olive-sided Flycatcher, Western Scrub-Jay, Pygmy Nuthatch, American Dipper, Golden-crowned Kinglet, Cedar Waxwing, Savannah Sparrow, Grasshopper Sparrow, Fox Sparrow, Brown-capped Rosy Finch, and Yellow-headed Blackbird. Boulder County nesting data exist for only a few of these species. Future monitoring of breeding populations of these habitat specialists will contribute to our understanding of natural processes in Front Range ecosystems and our efforts to conserve wildlife habitat.

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